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ABSTRACT

This paper discusses preliminary results of a project investigating the phenomenon of mastery motivation with three significant groups: provider, family, and extremely premature infant. Three focus groups to determine the state of early intervention's knowledge and utilization of mastery motivation were conducted in three states. A repeated measures, causal-comparative design with control group will be used to determine the effectiveness of this intervention by measuring parent-child interaction and parental perceptions of their child's master motivation skills, and three child variables (developmental status, mastery motivation skills, and self-regulation), at ages 9-12 months and 21-24 months corrected age. At 33-36 months chronological age, these five measures will also be taken, as well as a fourth child variable-relationship with peers. Preliminary findings indicate developmental differences appear to alter the presentation of mastery motivation behaviors in the assessment process. Increased variability in motor quality, task organization, and attention to task observed in the extremely premature population also appears to affect the level of success in initiating behaviors toward mastery. Focus group findings indicate there is a great diversity of provider knowledge, comprehension, and successful utilization of the construct of mastery motivation. Overheads explaining the study and findings are provided. (CR)

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Motivating for Competence: Integrating Child- and Family-Focused Mastery Motivation Strategies into Early Intervention for the Extremely Premature Infant and Toddler

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Motivating for Competence

Integrating Child- and Family-Focused Mastery Motivation Strategies into Early Intervention for the Extremely Premature Infant and Toddler

The extremely premature infant, born at no more than 27 weeks gestational age and 1,000 grams, presents subtle difficulties in higher cognitive processing skills, despite normal IQ and typical acquisition of early milestones when correcting for prematurity. Early intervention that focuses on mastery motivation – the infant/toddler's initiative and persistence in controlling his/her social and physical environment – may facilitate developmental competence in this at-risk population. The **Motivating for Competence** project trains and supports early intervention providers to expand the palette of their ways of work with young children, discuss interventions with parents, and enhance competence by looking beyond developmental milestones and the qualitative differences within those milestones, to examine how the child achieves his/her goals and how the parent responds to and facilitates the acquisition of that goal. The interventionist is then prepared to provide suggestions and recommendations that are unique to that family and to address outcomes across developmental domains while supporting the child's developing self-concept through mastery motivation.

The purpose of this project is to investigate the phenomenon of mastery motivation with three significant groups – provider, family, and extremely premature infant. Three focus groups to determine the state of early intervention's knowledge and utilization of mastery motivation were conducted in three states. The research project examines the effects of integrating mastery motivation strategies into current developmental intervention work with the extremely premature population to increase their overall repertoire and competence. Early intervention providers are trained and mentored to embed mastery motivation strategies into the existing developmental intervention stipulated in the Individualized Family Service Plan. A repeated measures, causal-comparative design with control group will be used to determine the effectiveness of this intervention by measuring two parent variables -- parent-child interaction and parental perceptions of their child's mastery motivation skills, and three child variables --developmental

status, mastery motivation skills, and self-regulation, at ages 9-12 and 21-24 months corrected age. At 33-36 months chronological age, these five measures will also be taken, as well as a fourth child variable -- relationship with peers. Child and family data will be compared between the intervention group and a control group of children who receive early intervention, but not the supplemental mastery motivation training.

Model of Motivating Behaviors Towards Mastery

This work is based on the Model of Motivating Behaviors Towards Mastery, created by the Motivating for Competence Project staff. The model suggests that the child begins to accomplish the goal by examining task properties through visual exploration, sensory exploration, and active exploration. The child then initiates and maintains goal-directed behaviors to successfully accomplish one component of the task. The child may also return to active exploratory behaviors to further understand the task properties during this period of persistence. Once the child completes one component of the task, the child returns to goal-directed and active exploratory behaviors to accomplish another task component. When all the components have been successfully completed, the child has accomplished the goal. Throughout this entire process, sustained interest, attention to task, and visual inspection is critical to goal achievement.

Tasks Presented in Assessment Procedures

Using tasks individualized to each child's developmental level based on the criteria set forth by Morgan and colleagues (1992), moderately challenging tasks – defined as tasks the child is able to complete partially, but not entirely -- are modeled for the child. The child is then given the opportunity to attempt to complete the task. Each task represents one of three categories: 1) effect production – cause and effect toys, such as pop-up boxes and activity centers; 2) practicing sensorimotor skills – relational play toys, such as blocks in containers and shapes in shape sorters; and 3) problem-solving – toys that require the child to figure out the task, such as obtaining an object behind a clear barrier and puzzles. Videotapes of children persisting in these tasks are observed for task persistence, degree of mastery motivation, affect surrounding persistent effort, and type of mastery motivation used (object or social).

Preliminary Findings

Current findings from the project have uncovered subtle differences between the typically developing children, and those born extremely premature. Developmental differences appear to alter the presentation of mastery motivation behaviors in the assessment process. The extremely premature children are smaller than their typical, corrected age counterparts. This results in the

child having increased difficulty engaging in tasks that may be too heavy or tall for the extremely premature child. Increased variability in motor quality, task organization, and attention to task observed in the extremely premature population also appears to affect the level of success in initiating behaviors towards mastery.

While the typical population exhibits varying levels of mastery motivation, the presentation of these behaviors appears consistent across the task categories. In the extremely premature population, these behaviors are more unpredictable. For example, the child may demonstrate high levels of mastery motivation behaviors in effect-production and low levels in problem solving. Another finding is the limited range of persistent behaviors towards mastery observed in the extremely premature population. Some of the most persistent infants continue to use only one or a few strategies to achieve the goal in comparison to the typical population.

Focus Group Findings

Two major areas of findings emerged from the focus group results. The first centers on early intervention practice in general, illustrating a continuum of implementation practices regarding the role of families in early intervention, as stipulated in Part C of the Individuals with Disabilities Education Act (IDEA). The continuum ranged from awareness to implementation on varying levels towards "best practice". The second major finding is the diversity of provider knowledge, comprehension, and successful utilization of theoretical constructs and, specific to the focus of this study, the construct of mastery motivation, in early intervention work with families. Recommendations resulting from the focus groups include (1) individualized and comprehensive provider training in the theory and utilization of mastery motivation concepts and working with families in general, (2) the development of mastery motivation assessments and curricula, and research efforts focusing on the identification of effective interventions for different populations, in different settings and circumstances, to meet the individual and complex needs of families and children with special needs.

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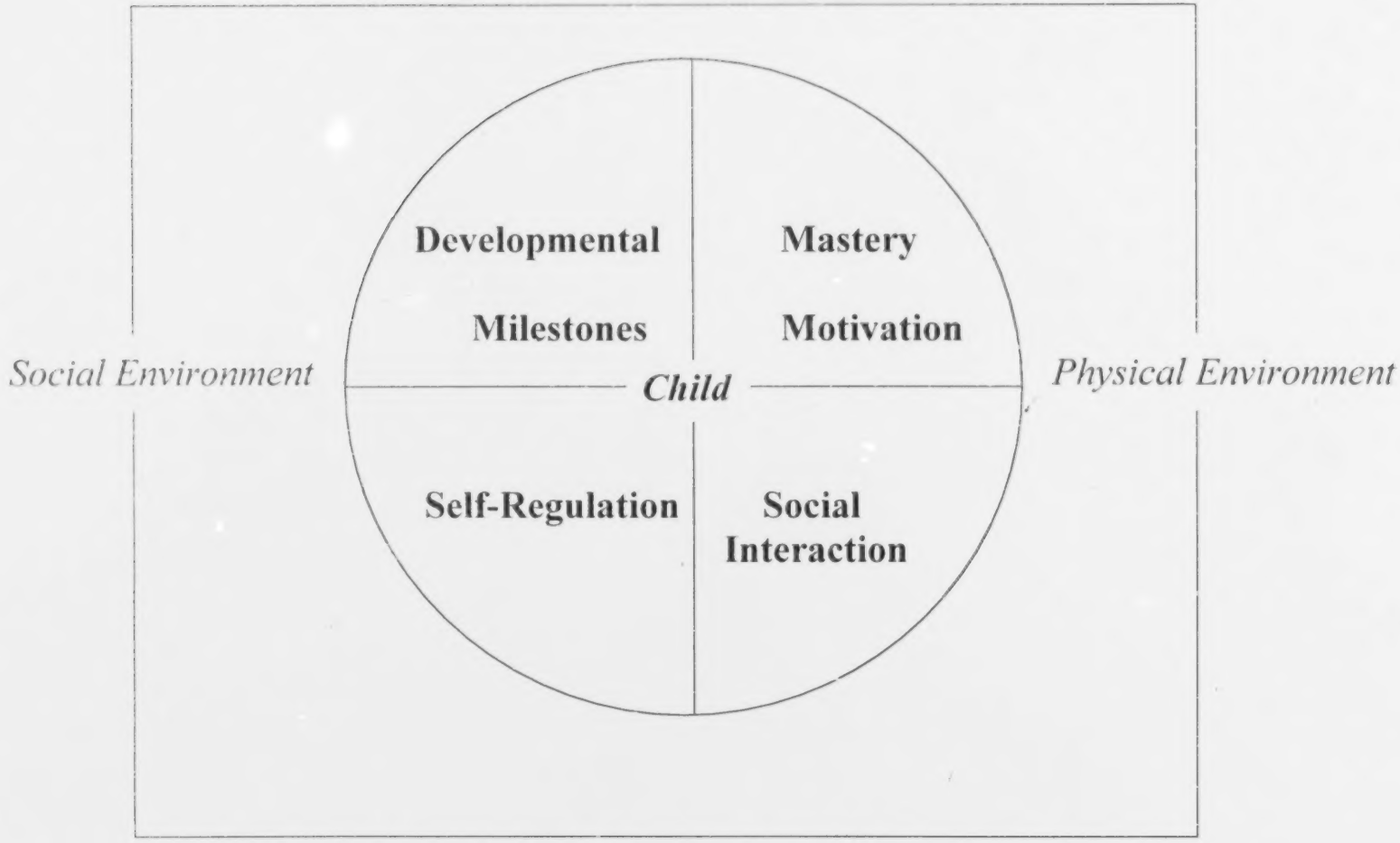
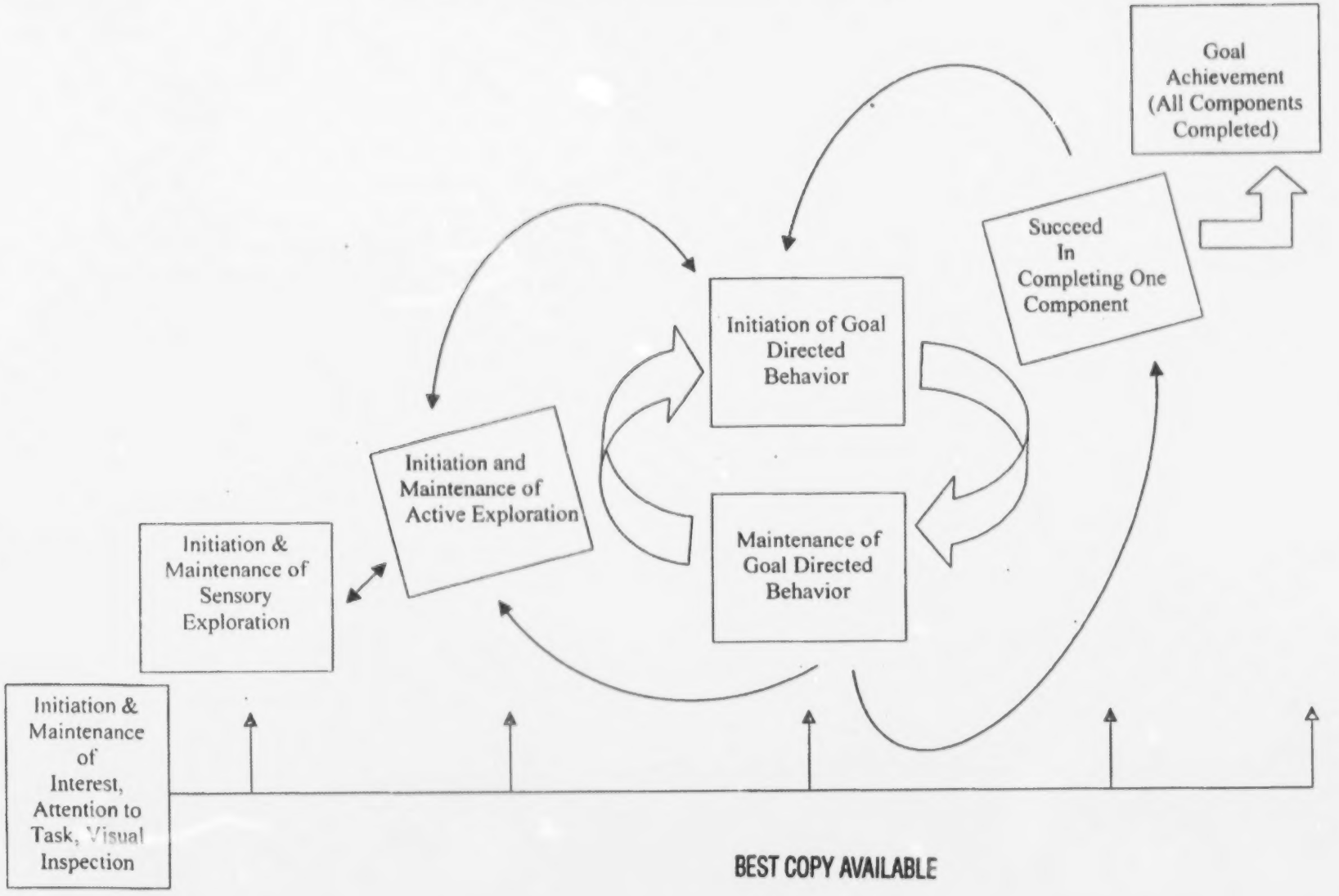
The Concept of Competence



Model of Motivating Behaviors Toward Mastery


Goal Achievement (All Components Completed)
Succeed In Completing One Component
Initiation of Goal Directed Behavior
Initiation and Maintenance of Active Exploration
Initiation & Maintenance of Sensory Exploration
Maintenance of Goal Directed Behavior
Initiation & Maintenance of Interest, Attention to Task, Visual Inspection

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Model of Behavioral Processes Toward Mastery

- Sustained interest, attention to task, and visual inspection needed throughout goal-directed activity
- Child begins to accomplish a goal by examining task properties through visual inspection, sensory exploration, and active exploration
- Child initiates and maintains goal-directed behaviors to persist and successfully accomplish one component of the task
- Child may return to active exploratory behaviors to further understand the task properties during this period of goal-directedness
- Once the child completes one component of the task, the child returns to goal-directed behaviors to accomplish another task component
- Child repeats the process until the entire goal is accomplished
- When all the components have been successfully completed, the child has accomplished the goal

Mastery Motivation:

Yes I Can!

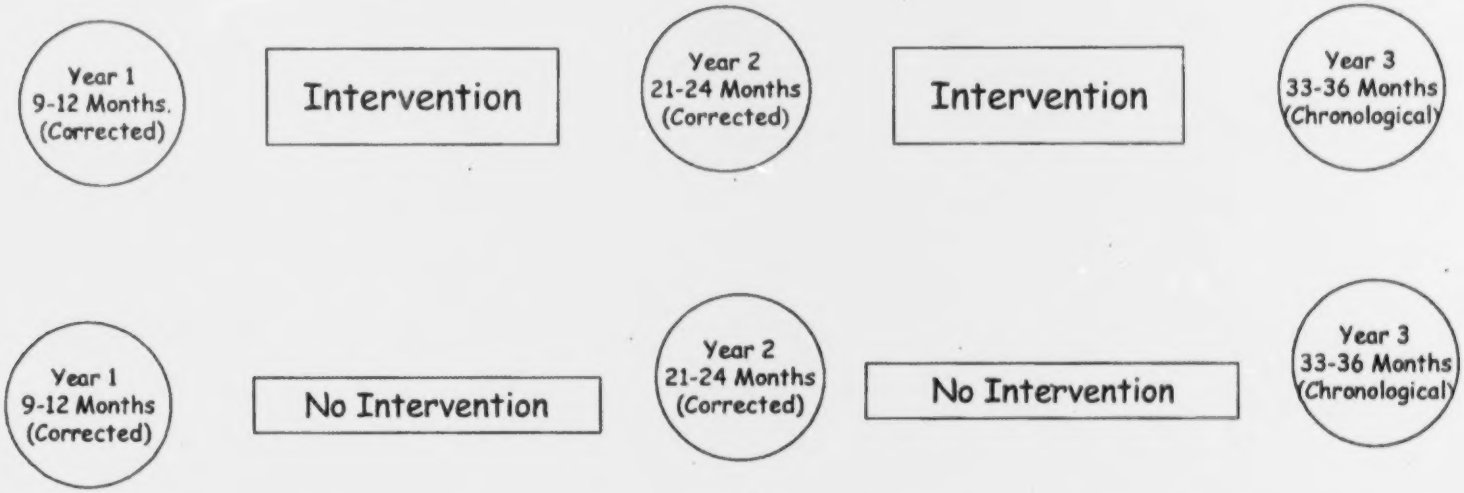
the disposition to
persistently attempt to figure out
moderately challenging objectives
such as how to work a toy,
get a person to do something,
or learn a new motor skill

Research Objectives

- To assess the current state of early intervention's knowledge and utilization of mastery motivation
- To refine recommended intervention strategies to promote mastery motivation development
- To design and utilize a consultative support model for early interventionists to assess mastery motivation and embed mastery motivation strategies into current interventions
- To evaluate the effectiveness of mastery motivation intervention on child competence

Research Design

Repeated measures, causal comparative design with control group



Sample

- Experimental = 26 infants; Control = 26 infants
- Gestational Age ≤ 27 weeks
- Birthweight ≤ 1,000 grams
- Enrolled in Part C, IDEA Early Intervention
- Functional Definition: Can undertake the lowest level mastery motivation play task when demonstrated and offered to him/her, with or without the use of assistive support

Outcome Measurements at Years 1, 2, and 3

Child Competence

- Mastery Motivation - Individualized Assessment of Mastery Motivation
- Developmental Status - Bayley Scales of Infant Development II
- Child Interaction - Nursing Child Assessment Teaching Scales
- Self-Regulation - Early Coping Inventory

Family Support Characteristics

- Caregiver Interaction - Nursing Caregiver Assessment Teaching Scales
- Perception of Child Mastery Motivation - Dimensions of Mastery Questionnaire

Child Mastery Motivation Target Outcomes for Intervention*

Instrumental Mastery Motivation

- Persist in achieving social and object goals
- Maintain attention to task
- Use goal-directed behavior
- Initiate and take turns
- Use various problem-solving strategies
- Generalize mastery motivation strategies across different situations (i.e., use social mastery motivation in object mastery motivation situations)

Affective Mastery Motivation

- Have a positive affect while figuring out task – Enjoy the effort
- Be an "Effective Initiator" – Succeed in the initiation
- Develop a positive self-concept

* Adapted from Busch-Rossnagel, N. (1997). Mastery motivation in toddlers. *Infants & Young Children, 9* (4) 1-11.

Family Facilitation Strategies*

Facilitation Approaches

- When the child is enjoying his/her effort, limit praise, but not positive affect
- Use "one-step-ahead" to help child achieve success – Provide assistance at a level higher than the child is able to achieve on his/her own
- Focus child's attention
- Point out critical features of the task for success
- Demonstrate with gestures or another object without interfering in child's activity
- Lessen assistance as the child learns the task

Interactional Approaches

- Create opportunities with variety, complexity, and responsiveness that are slightly challenging
- Give child opportunities to initiate – wait time, allow him/her to ask for help
- Provide sensory stimulation (or calming strategies) and assistance as a response to the child's behavior
- Use verbal instead of physical guidance
- Allow child to try out a variety of problem-solving strategies independently

Parental Affect

- Have a positive perception of child's mastery motivation
- Keep a positive affect
- Praise independent efforts, not just when the child accomplishes a task

Provider Intervention Approaches*

Intervention Strategies

- Match reinforcement strategies to motivation style and level for the child based on the specific activity
  - *Intrinsically interesting activity for the child → Provide little external reinforcement (praise, encouragement)*
  - *Less intrinsically interesting activity for the child → Provide more external reinforcement (praise, encouragement)*
- Teach reciprocity – As the caregiver changes interactions and cues, a related change in child should occur. The caregiver should also respond in turn to the child's changes in interactions and cues
- Teach contingency – Responses are appropriate based on child's cues
- Use scaffolding – Providing assistance at a level higher than the child is able to achieve on his/her own
- Adapt assistance as child's mastery motivation increases
  - *Move from concrete to abstract cues*
  - *Lessen explicit and concrete nature of instruction*

Coaching Model

- **Explain** intervention strategy to family
- **Demonstrate** intervention strategy using toys and situations in the child's typical environment
- **Observe** family's attempt to use strategy
- Provide family with **feedback** on use of intervention strategy

State of Early Intervention Knowledge and Utilization of Mastery Motivation

Focus Group Results

- **Early Intervention Practice in General**
  1. There is a continuum of implementation practices regarding the role of families in early intervention, ranging from basic awareness to implementation on varying levels towards "best practice"

- **Diversity of Provider Knowledge, Comprehension, and Successful Utilization of Theoretical Constructs and, Specifically, Mastery Motivation**
  1. None of the participants were familiar with the construct of mastery motivation
  2. Participants differed in their knowledge and utilization of mastery motivation components – attention, initiation, and persistence
  3. Even the most sophisticated providers rarely identified target outcomes, facilitation strategies, and intervention approaches framing the interventions supported by the Motivating for Competence Project

- **Participants recognized and appreciated the comprehensiveness of mastery motivation as a theoretical construct integrating developmental domains and providing a holistic framework for assessment and intervention**

State of Early Intervention Knowledge and Utilization of Mastery Motivation

Focus Group Recommendations

- **Embed the construct of mastery motivation into early intervention provider training to establish a holistic developmental framework from which to work**
  This training must be attentive to (1) theoretical knowledge and its role in child development, and (2) implementing research-based assessment and intervention approaches

- **Training efforts should be individualized and comprehensive, with mechanisms for on-going follow-up training and peer support**

- **Prepare interventionists to work with families as consultants to embed intervention strategies into daily routines and to address family concerns**

- **Develop assessment instruments and curricula focused on mastery motivation**

- **Center future research efforts on the identification of effective interventions for different populations, in different settings and circumstances, to meet the individual and complex needs of families and children with special needs**

Current Qualitative Findings

Effects of Extreme Prematurity on Mastery Motivation Expression

- Smaller than full-term results in more difficulty engaging in tasks
- Quality of motor movements affects ability to persist and engage
- Difficulty organizing tasks
- Variable attention to task
- More variability in mastery motivation performance across task categories (cause-effect, practicing sensorimotor skills, problem solving)
- Fewer problem solving strategies employed

Consultation Support to Providers Implementing Intervention

- Study Facilitators Training
  - Introductory Inservice on Mastery Motivation, Research Design, & Role of Providers
- Plan of Action (Annual)
  - Creation of Child Outcomes and Intervention Strategies to Embed into Current Interventions
- On-Going Follow-Up
  - Phone Support
  - Monthly Written Reflections Submitted by Providers
  - Plan of Action Review Meetings (Every 4 Months)